Manufacturer: National Instruments

Board Assembly Part Numbers (Refer to Procedure 1 for identification procedure)**:**

Part Number and Revision	Description
143035A-01L or later	**NI 9145**

Volatile Memory

Target Data	*Type*	*Size*	*Battery Backup*	*User[1] Accessible*	*System Accessible*	*Sanitization Procedure*
System Memory	DRAM	2 Gb	No	No	Yes	Cycle Power
LabVIEW and User data	Zynq FPGA w/ Block RAM	560 KB	No	Yes	Yes	Cycle Power
CPLD Memory	CPLD	32 bytes	No	No	Yes	Cycle Power
EtherCAT PD RAM	CPLD	60 KB	No	No	Yes	Cycle Power

Non-Volatile Memory (*incl. Media Storage*)

Target Data	*Type*	*Size*	*Battery Backup*	*User Accessible*	*System Accessible*	*Sanitization Procedure*
ECAT Slave Information	EEPROM	2 KB	No	No	Yes	None
EtherCAT controller and CPLD configuration	CPLD	15.4 KB	No	No	No	None
Device configuration	Flash	512 MB				
• Firmware			No	No	No	None
• User data			No	Yes	Yes	Procedure 2

[1] Refer to *Terms and Definitions* section for clarification of *User* and *System Accessible*

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Procedures

Procedure 1 – Board Assembly Part Number identification:
To determine the Board Assembly Part Number and Revision, check the top left corner of the white label on the bottom of the module (14xxxx<REV>-0xL).

Procedure 2: Device Configuration Flash (User Data)
Users can write to but not read from the User Data area of the Device Configuration flash. The flash is only writable through the File over EtherCAT (FoE) download protocol. To restore the User Data area to the factory state, complete the following steps:

1. Discover your real-time target and NI 9145 chassis in LabVIEW.
2. Right-click the RT target and select **Deploy All**.
3. After a successful deployment, change the controller to Configuration Mode. Right-click the RT target and select **Utilities » Scan Engine Mode » Switch to Configuration**.
4. Right-click the NI 9145 that requires a firmware change and select **Online Device State**.
5. Change the online state by clicking the **Init** button and then clicking the **Bootstrap** button. The LED beside the **Bootstrap** button lights up.
6. Click the **Download Firmware** button. Navigate to Program Files\National Instruments\NI-IndCom for EtherCAT and select the NI factory firmware file with a `.foe` extension.
7. Do not disconnect the device or interrupt firmware while it is downloading.

Terms and Definitions

Cycle Power:
The process of completely removing power from the device and its components and allowing for adequate discharge. This process includes a complete shutdown of the PC and/or chassis containing the device; a reboot is not sufficient for the completion of this process.

Volatile Memory:
Requires power to maintain the stored information. When power is removed from this memory, its contents are lost. This type of memory typically contains application specific data such as capture waveforms.

Non-Volatile Memory:
Power is not required to maintain the stored information. Device retains its contents when power is removed. This type of memory typically contains information necessary to boot, configure, or calibrate the product or may include device power up states.

User Accessible:
The component is read and/or write addressable such that a user can store arbitrary information to the component from the host using a publicly distributed NI tool, such as a Driver API, the System Configuration API, or MAX.

System Accessible:
The component is read and/or write addressable from the host without the need to physically alter the product.

Clearing:
Per *NIST Special Publication 800-88 Revision 1*, "clearing" is a logical technique to sanitize data in all User Accessible storage locations for protection against simple non-invasive data recovery techniques using the same interface available to the user; typically applied through the standard read and write commands to the storage device.

Sanitization:
Per *NIST Special Publication 800-88 Revision 1*, "sanitization" is a process to render access to "Target Data" on the media infeasible for a given level of effort. In this document, clearing is the degree of sanitization described.